

## **WAGE DIFFERENCES BY GENDER, WAGE AND SELF EMPLOYMENT IN URBAN TURKEY**

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This paper explains wage differences by gender, wage and self employment in an urban setting in Turkey. Data employed is taken from the 1994 Household Income Survey of the State Institute of Statistics (SIS) of Turkey. The Oaxaca decomposition of the wages into discrimination and endowment components indicates the existence of a relatively higher discrimination in the wage employment than in the self employment. In the context of returns to education, self employment provides the highest returns for men in self employment. This shows that education is highly valued in the self employment than in the wage employment.

### **I. INTRODUCTION**

Studies to determine wage differentials have evoked considerable interest in both developing and industrialised countries. Depending upon the characteristics of their labour markets, factors producing wage differentials in those studies varied from race, gender, education, job status, occupation, type of sector (public vs private) to type of industry, among the others.

A glance at the literature reveals that there exist two main approaches to study wage differentials. The earlier approach, the human capital model, explains wage differences (and their decline over time) by the relative educational attainment and quality of education obtained by individuals (Becker, 1964; Mincer, 1958; Mincer, 1974). It is implied that observed wage differences are due to different educational

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attainments of individuals. A more recent approach stresses discrimination in wage determination and tries to decompose wage differences into two components: discrimination, which includes differential evaluation of individuals' characteristics in the labour market, and endowments of individuals (Oaxaca, 1973). Inclusion of both endowment, which is analogous to human capital model, and discrimination, which is known to exist in almost all labour markets, can be considered an improvement over the human capital model. This paper adopts the discrimination approach and tries to explain wage differences by job status in an urban setting in Turkey.

Turkey offers a unique opportunity to study wage differentials due to the characteristics of its labour force and prevailing income inequalities. Tansel (1999: 2) describes the Turkish labour market's characteristics as "high rates of population and labour force growth, declining rates of participation and exceptionally low levels of female participation in urban areas." Turkey has a very segregated labour market where women are traditionally employed in agriculture. In 1970, 89.5 % of women compared to 54% of men were employed in agriculture. Despite the restructuring of the Turkish economy over the past 20 years, which brought a reduction in the agricultural workforce, the overwhelming majority of Turkish women are still employed in agriculture. In urban areas, the women's participation rate is 16%. Of these, 10% are unpaid family workers. On average, women receive 50% of male earnings which points out a considerable discrepancy in wages –a discrepancy observed for each occupation, job status and level of schooling. In rural areas, the segregation is even more marked. 90% of working women are employed in agriculture and 97% of them work as unpaid family workers. In industry and services, women's participation remains as low as 18.4% and 14%, respectively (Dayioğlu, 1995: 3).

Due to considerable variation in its labour market, Istanbul is selected as a study site for the analysis of this article. High labour participation of women in Istanbul provides a chance to observe wage differences due to many of the variables of interest, particularly job status. Data employed is taken from the 1994 Household Income Survey of the State Institute of Statistics (SIS) of Turkey. The wage estimation model developed combines two sets of variables. The first set includes variables tapping endowments of individuals, which

makes up, in a sense, an enhanced human capital model. The second set is composed of work-related variables. The two sets are combined in the model without any à priori restriction. Due to the cross-sectional nature of the data employed, homoscedasticity assumption is tested. Sample selectivity bias (or the inverse Mill's ratio) for each job status plus gender category is carried out by using the two-step Heckman procedure (Heckman, 1979). The Oaxaca (1973) decomposition is used to decompose the wages into discrimination and endowment components.

The organisation of the paper is as follows: Section II summarises the studies on wage discrimination and wage decomposition in developed and developing countries as well as Turkey. Section III defines the data and variables of interest of the wage equation. Section IV estimates an empirical wage model, and reports the econometric results for men and women in wage and self employments, respectively. Section V presents the Oaxaca decomposition of wages with respect to the discrimination and endowment components. The last section presents the concluding remarks.

## **II. LITERATURE ON WAGE DISCRIMINATION**

Since the work of Oaxaca, wage determination has been subject to scrutiny in terms of its components. Oaxaca, in the introduction of his article, notes that "Culture, tradition and overt discrimination tend to make restrictive the terms by which women participate in the labour force. These influences combine to generate an unfavourable occupational distribution of female workers and to create pay differences between males and females." (Oaxaca, 1973: 693). In fact, there are two types of discrimination at work in developing countries, defined as pro- and post- discrimination. Pro-discrimination occurs when certain groups are prevented from joining the labour market. In the case of women, this is obvious since they are not sent to school as much as males, so their chance to participate in the labour force is reduced considerably. Post-discrimination operates within the labour market. Employers, under the effects of the cultural characteristics of society, evaluate endowments of individuals differently. It is considered appropriate for women to work in certain occupations, mostly lower paying jobs (Cohen, 1971). Even in the same occupation there are certain levels that they are not allowed to attain.

It is clear that post-discrimination is more pronounced in developed countries where gaps producing pro-discrimination among various groups tend to close as in the U.S., where the gap between the educational attainments of blacks and whites tend to disappear. Unlike developed countries, developing countries are plagued with both pre- and post-discrimination. Mean years of schooling for males by region in Turkey vary from a highest of 6.48 for Marmara to a lowest of 4.75 in Southeast Anatolia. Corresponding figures for females are 5.76 and 1.81, respectively (Tansel and Güngör, 1992: 8). The discrepancy is due to attitudes toward education of daughters and differences among the regions in terms of economic development and hence the availability of educational facilities.

Decomposition of wage is helpful to see what we call post-discrimination in the labour market and has been used extensively in wage differential research in both developing and developed countries<sup>1</sup>. Due to the importance and high visibility of male-female wage differences, most of these works deal with decomposition of wage for gender which is followed by race and ethnicity. Only a small portion of the above studies deal with other determinants of income such as full time/part time working in Manning and Robinson's (1998: 389) article and public-private sector employment in Tansel's (1999) work. With few exceptions, most of the studies used cross-sectional data for one year (Ashraf, 1994; Ashraf and Ashraf, 1998; Darity et. al., 1995). While only Fairlie (1999) uses panel data for 1968-1989 the Manning and Robinson (1998) study employs limited panel data for Britain.

The application of wage decomposition highlighted the issue of controlling the sample selectivity bias (Heckman, 1979) which is considerably important for some labour markets. In labour markets which are segregated and discriminatory, selecting a representative group of disadvantaged individuals (women, blacks, public employees) becomes problematic and OLS estimates will be biased. Due to the low level of participation (high pro-discrimination) of women in the workforce, sample selectivity bias is considered more appropriate for women than men. However, some studies argue that sample selectivity bias is a more serious problem for the male population (Winer and Gindy, 1992; Arends, 1992). It appears that sample selectivity bias should also be controlled for men especially in countries where the unemployment rate is relatively high (Dayıođlu, 1995). It is also true

that in a number of studies the coefficient of sample selectivity term was found to be insignificant (Scott, 1992; Tenjo, 1992; Yang, 1992). Such conclusions render the selectivity problem an empirical question rather than something to be known *à priori* (Dayıođlu, 1995).

Katz (1997) investigated the gender gap in a Russian industrial town. Based on previous studies done by others, she reports a serious income gap between males and females in Russia, which is 2/3 in favour of males. She estimated log-linear wage equations separately for men and women for both hourly and monthly wages. Sample selectivity bias was not controlled since she was sure that sampled women were representative of others at large. Decomposition of the gender wage differential showed that “given the Soviet wage-structure which was in itself male-biased, differences in experience, education, qualification level and work conditions account for roughly one-third of the differences in hourly wages. Despite the broad range of factors controlled, Soviet women were paid less because they were women. A bias is built into perceptions of productivity.” (Katz, 1997: 446).

In one of the first studies on wage decomposition in developing countries, Ashraf and Ashraf (1993) find a high level of discrimination against women in Rawalpindi City. Years later, Ashraf and Ashraf (1998) report for Pakistan a substantial decline in the gender earnings gap between 1979 and 1985-86 which is valid for four provinces and across every industrial group. Similarly, Kingdon (1997) finds for India rising rates of returns to education by education level, yet girls face significantly lower economic rates of returns to education than boys. In a study on Malaysian data, Nor (1998) suggests that the gender gap, which is determined by productivity characteristics, present family variables and occupational distribution of women and men is largely due to labour market discrimination, which is a result of a favouritism towards men rather than an unfavourable female treatment in the labour market.

In her study of gender income inequalities, Dayıođlu (1995: 200) highlights earnings variations not only by gender but also by sector, region, occupation and educational attainment. Vast differences in income by these variables are documented. By adopting the discrimination approach, she indicates two sources for gender income inequalities: 1) Human capital differences between genders and 2) Different valuation of the productive characteristics of the two groups,

that is, discrimination in the labour market. By employing the Oaxaca technique, she carries out a decomposition of both male-female and region wage equations. She concludes that “Regardless of the type of decomposition, the most important factor contributing to the earnings gap between genders is determined to be the different valuations of individual productive traits or discrimination against women in the labour market”(Dayıođlu, 1995: 221).

Tansel (1996) investigates self and wage employment of men and women with respect to residential segregation (rural vs urban), age and education, after providing profiles of the wage- and self-employed in Turkey. Her particular interest is to find determinants of employment choice and estimation of wages for the wage- and self-employed. She observes that the “fraction of self-employed declines in favour of wage earners during the process of development.”(Tansel, 1996: 21). This movement suggests that mobility may be switching from self employment to wage employment. She finds that education has a greater effect on wage employment choice of women than of men. Women’s earnings are more responsive to education than men’s for the wage earners. In a similar way, education seems to determine self-employed men’s earnings more strongly than the wage earners. The present study, in some ways, details Tansel’s work.

More in line with discrimination literature is Tansel’s (1999) work on public-private employment choice and wage differentials of the two groups. Controlling for observed characteristics and sample selection, public administration wages are found to be at parity or lower than covered private sector, in particular at the university level. Wages at state-owned enterprises are higher than covered private sector wages except at the university level. While the public administration has a more egalitarian wage structure, the covered private sector exhibits a large gender gap in wages, which suggests a stronger discrimination in the private sector. Comparing covered and uncovered earners, she notes that the first have two and a half times higher wages than the latter (Tansel, 1999).

Motivated by previous studies, this paper aims at contributing to the existing empirical literature by estimating an empirical wage model for men and women in wage and self employment and decomposing the wages into discrimination and endowment components in urban Turkey in the following subsections.

### III. DATA AND VARIABLES

The data are obtained from the 1994 Household Income Survey of the State Institute of Statistics of Turkey (SIS). Instead of using the whole data set, which covers 19 cities, the decision has been made to use only the data for Istanbul on the grounds that it is the largest city in Turkey which offers a chance to study wages of individuals in all job statuses and income strata. Yet, only the individuals who are working in non-agricultural jobs and between the ages of 15 and 65 are included in the analysis. With these restrictions, sample size declined to 1324.

The data set includes the determinants of the earnings differentials of each working individual. Specifically, information on gender, age, education, marital status, occupation, economic activity (industry), public-private employment, number of workers at the workplace, the number of hours worked per week, social security coverage and job experience is employed. Only the net activity income of each individual is used in the analysis. Net activity income, then, includes wages and salaries, entrepreneurs' income, income earned from manufacturing and construction sectors and mining activities, and service and trade income, after taxes and social security payments.

By definition, unpaid family workers (UFW) do not have any net activity income. Although a few reported in kind income, no estimation is attempted for the unpaid family workers, which reduces the number of categories of job status variable to four: wage-salary earners, casual workers, employers and the self-employed. Furthermore, for the estimation of wage equations, a two-category job status variable is used where 1 represents wage employment (wage-salary and casual workers) and 2 represents self employment (employers and the self-employed).

Information on occupation is not used and is replaced by industry in dummy format since there is a considerable overlap between the two and the industries have never been employed in the previous research. Job experience is calculated in the same way as described by Oaxaca, that is  $EXP = AGE - EDUC - 6$ . Due to a high correlation between age (AGE) and experience (EXP), age is not used except for descriptive purposes (Oaxaca, 1973). Despite the existence of detailed information about the kind of social security coverage, a binomial coverage variable is created and turned into dummies. A similar approach is followed for a five-

category marital status variable, which is expressed as a binomial (1 for married and 2 for others). Two kinds of education scale are available for the analysis. The first captures the level of schooling by school (or diploma) type completed. The second is created by the researchers by assigning years corresponding to each level. Whenever necessary, dummies representing each category of education variable are created and used particularly in wage estimation equations. Private-public employment separation is expressed in dummy format.

### *A. Job status*

The labour market structure of Turkey resembles more to that of developed countries where wage employment is relatively higher than self employment compared to the developing countries where self employment is relatively higher. In 1955, 43.8 percent of the male labour force was self-employed as opposed to 20.5 percent wage earners. In 1990, self employment declined to 30.7 percent while wage employment rose to 50.1 percent. Tansel (1996) reports similar trends for the Republic of Korea, Taiwan and China. In the same period, increases both in self employment and wage employment of women are observed due to the increased participation of women in the labour force.

**Table 1: Employment Composition of Urban Population and Istanbul by Gender (%)**

Employment Status	Turkey (Urban)		Istanbul	
	Men	Women	Men	Women
Wage and Salary Earners	56.6	64.2	56.2	77.2
Casual Workers	9.6	6.5	15.6	8.4
Employers	12.6	1.1	9.2	2.4
Self-employed	16.5	13.0	15.0	6.0
Unpaid Family Workers	4.2	15.2	4.0	6.0

A closer look at the distribution of job status in urban Turkey and Istanbul reveals that an even higher proportion of the urban labour force is in wage employment. Table 1 summarises percentages of people in different job statuses by gender.

If the hypothesis that the higher the proportion of wage employment, the higher the economic development is tested with these data, Turkey, and particularly Istanbul, seems to have adopted a similar path as the



developed countries. The percentage of self-employed men for Istanbul is just a few points above the percentage for Germany (8.9%).

### ***B. Income***

In the job market of Istanbul, men have higher incomes compared to women. This is true regardless of the job status held. The highest mean income for men belongs to employers, followed by the self-employed, wage-salary earners and casual workers. The employers, on average, make 3.2 times more than the self-employed, 5.4 times more than the wage-salary earners and 7 times more than the casual workers. Mean male earnings indicate tremendous differences. This is also true for women, although to a lesser degree. Unlike men, wage-salary earner women make, on average, more than the self-employed. Again, employer women make 5.5 times of the casual and 2.7 times of the wage-salary earners. Similar sizable differences are also observed between men and women. Expressed as a percentage of men's income, women's income is 37 for employers, 25 for the self-employed, 75 for wage-salary earners and 47 for casual workers. It is interesting to find the highest earnings discrepancy in the self-employed and the least discrepancy in the wage-salary group. Table 2 compares income, education and age of the labour force in Istanbul by job status.

**Table 2: Means and Standard Deviation of Some Independent Variables by Job Status and Gender**

	Wage-Salary		Casual		Employer		Self-employed		UFW	
	M	W	M	W	M	W	M	W	M	W
Inc*	95.4 <sup>1</sup> 101.8 <sup>2</sup>	71.6 87.9	74.0 53.4	34.5 27.5	519.7 776.0	191.5 200.4	162.4 200.7	40.3 48.9	-	-
Log Inc	18.05 .78	17.70 .87	17.93 .64	16.96 1.04	19.53 1.01	18.54 1.30	18.48 1.01	16.78 1.39	-	-
Educ	7.36 3.57	8.26 4.14	5.52 2.03	4.90 4.50	8.48 4.22	10.67 2.58	6.51 3.30	6.67 4.30	7.64 3.33	6.27 3.47
Age	32.91 10.74	28.80 9.41	32.24 10.60	34.67 12.37	39.35 9.75	36.17 10.89	40.54 11.08	40.00 10.51	26.39 11.30	39.00 9.29
Exp	19.55 11.05	14.54 10.98	20.72 11.30	23.76 15.04	24.87 10.41	19.50 12.63	28.03 11.49	27.33 12.58	12.75 12.22	26.73 9.51
Hours	53.19 14.34	47.13 10.87	56.58 13.96	38.19 24.50	53.72 14.98	53.50 37.45	55.65 19.88	27.53 15.42	54.32 15.21	47.28 20.88

W: women, M: men, UFW: unpaid family worker, Inc: income, Log Inc: logarithm of income, Educ: education, Exp: experience, Hours: weekly working hours.

\* Million Turkish Liras.

<sup>1</sup> The mean.

<sup>2</sup> The standard deviation.

### ***C. Education***

In a study that employs national data, wage-salary earners are found to have the highest education compared to other groups (Tansel, 1996: 8). In Istanbul, employers seem to have the highest education followed by the wage-salary earners. Given the economic potential of Istanbul, which attracts the most educated and qualified people, this is no surprise. What is more interesting is the higher educational attainments of women among the employers, wage-salary earners and self-employed. Higher education of the employers may be an indication of a trend from traditional to schooled businessmen. Higher women's participation in the employer group may mean that setting up and running a business requires relatively higher education and women have to be even better to establish a business in the male-dominated labour market.

### ***D. Age, experience and weekly working hours***

Two variables, age and experience, show a similar pattern due to the way the experience variable is calculated. Since experience is more relevant to determination of wages, interpretation here will be limited to experience only. The self employment group (employer and self-employees) have higher mean experience compared to other status groups. This is explained by the nature of the private work that takes a longer time to build and, traditionally, the lack or limited application of pension or retirement funds in self-employed jobs. It is interesting to note that women who work as casual workers and unpaid family workers have higher mean years for experience. This again can be explained by the absence of social security provisions, particularly for the unpaid family workers who are forced to work much longer in order to survive.

The average number of hours worked per week is higher for men (53.62) than for women (45.36) in Istanbul. The casual workers put in more hours (56.58) than any other group, followed by the self-employed (55.65), unpaid family workers (54.32), employers (53.72) and wage-salary earners (53.19). Order by work hours per week changes for women in that employer women work the most per week (53.50) followed by women in unpaid family work (47.27), women in the wage-salary group (47.13), women in casual work (38.19) and women in self employment (27.53).

### *E. Industry affiliation and public vs. private employment*

The industry that the individual works in has not been dealt with in wage determination studies in Turkey. Instead, occupations are used in the efforts to determine wage (Metin and Üçdoğruk, 1997). For Istanbul and its very divided labour market, the idea of using and trying industries was appealing. In fact, for Istanbul, industry is found to be more correlated with income than occupation. Originally, industries are coded into 9 main categories, but due to the small numbers in the first two categories and the electricity, gas and water category, they are regrouped into six categories as manufacturing, construction and maintenance, trade (wholesale and retail), transport, communication and storage, finance and services (societal and personal). Mean wages in industries exhibit substantial differences in that transport has the highest income (204.7 m. TL) followed by trade (162.5 m. TL), finance (124.4 m. TL), services (116 m. TL), construction (102.7 m. TL) and manufacturing (93.6 m. TL).

**Table 3: Cross-tabulation of Industry by Job Status and Employment Type**

Industry	Job Status			Employment Type		Total
	Wage Emp.	Self Emp.	UFW	Public	Private	
Manufacture	44.3	26.0	28.8	9.9	43.2	39.7
Construction	9.7	11.2	16.9	--	11.6	10.4
Trade	20.5	38.2	42.4	2.8	27.9	25.3
Transport	5.6	12.6	5.1	10.6	6.7	7.1
Finance	1.9	0.4	1.7	2.8	1.4	1.6
Services	17.9	11.6	5.1	73.8	9.2	16.0

$\chi^2=87.7$  d.f.=10 p=.001

$\chi^2=415.2$  d.f.=5 p=.001

In order to see the job status of workers in industries, the two variables are cross-tabulated. The manufacturing industry employs at least one fourth of the workers in each status group and is highly represented among wage-salary earners (44 %). Unpaid family workers are highest in the construction industry, which is followed by the self-employed. Trade is the primary industry for self-employed and unpaid family workers, while only one-fifth of wage-salary earners work in trade. The higher representation of unpaid family workers in trade is explained by the higher frequency of family-owned businesses in

Istanbul. The self-employed make the modal category in the transport sector where the other status groups are represented with 5 percent each. While there are relatively more wage-salary earners in the services industry, all three status groups are represented rather weakly in the finance sector.

#### ***F. Marital status***

Marital status is considered as one of the determinants of wage. It is speculated that responsibilities to take care of a family increase the worker's motivation to find higher paying jobs and work longer hours to meet the needs of a family. In general, married workers earn more than unmarried ones in Istanbul, where the mean earning for the married is 148.5 million TL compared to 63.2 million TL for the unmarried. This difference varies according to the job status of the individuals. Unmarried ones earn on average 54.2 percent of the married in the wage-salary group, 83.3 percent in the casual worker group and 52 percent in the employer group. Among the self-employed, the difference is negligible (also insignificant) and in favour of the unmarried ( $t=1.445$ ,  $df=177$ ,  $p=.150$ ).

#### ***G. Social security coverage***

It is generally accepted that the effect of social security coverage on wages is not direct, and on average, minimal. Therefore, coverage in any form is not expected to generate considerable income differentials. However, the income gap is sizable between covered and uncovered workers in Turkey. In the case of Istanbul, the mean income for covered workers is higher than uncovered ones (143.8 m vs. 94.5 m). Moreover, within the covered and uncovered groups, there exist considerable differences by gender. Among the covered workers, the mean income for men is 156.9 m while it is 88.6 m for women. While uncovered men make 108.9 m, uncovered women make 28.3 m. Of course, the observed differences in income cannot be explained by the existence or absence of the coverage. Cross-tabulation of coverage status with education clearly indicates that coverage itself is related to education ( $\chi^2=103.1$ ,  $df=5$ ,  $p=.001$ ). It is logical to think that more educated workers have higher inclination toward being covered on their jobs.

#### IV. DETERMINATION OF THE INCOME DIFFERENTIALS

The model used in the following sections includes two sets of variables. The first is known as human capital variables that tap qualities of individuals such as education and experience. Variables in the second set relate to work and the individual's position at work (see Note 2).

##### *A. Estimates for Men in Wage and Self Employment*

The estimates of the log earnings equation for wage earner men in Table 4 indicate that the majority of the categories of education—the most frequently used human capital variable—are significant with expected signs. The illiterates and primary school graduates do not seem to be gaining any returns for their education as compared with the workers who are literate but with no schooling (base category). This is different for junior high school, high school and university and more educated wage earners who make consistently higher returns to their higher educational attainments.

The negative sign of the social security coverage is expected, implying that having social security shelter actually lessens wage earners' income as compared to those who are not covered (base category). It is a fact that security coverage is not spread in Turkey. Paying insurance premiums and accepting other responsibilities born out of insurance is considered as a burden by the employer. Instead of being responsible to the State due to insured workers, many employers prefer to pay some extra wages to workers who do not demand insurance.

As the significance of the dummies for industry indicate, being in manufacturing, construction and finance industries does not bring workers any more income than the wage earners in the services industry (base category). However, the wage workers in the trade and transport industries gain 35 percent and 42 percent more than the service workers.

Work hours per week have a small positive effect on log income of wage earners. Being married means 29 percent more income over the income of the unmarried wage earner men, which is in line with general expectations. Similarly, job experience has a positive effect on the log income of the wage earner men.

For self-employed men, education is more profitable since returns to education are higher compared to returns to education in wage employment. Self-employed men gain much more for the same education in self employment than their counterparts in wage employment. This may mean a higher valuation of education in the self employment. As opposed to the trend in wage employment, workers who are covered make little more than the uncovered in self employment.

**Table 4: Selectivity Corrected Estimates of Wage Equations for Men**

Variables	Wage Employment		Self Employment	
	Coefficient	P >  z	Coefficient	P >  z
Constant	16.2191	0.001	15.8027	0.001
Education				
Illiterate	-0.2243	0.246	-0.2772	0.733
PS	0.1934	0.207	0.7544	0.162
JHS	0.3403	0.033	1.0739	0.082
HS	0.7518	0.001	1.2447	0.017
UNIV+	1.6124	0.001	1.7273	0.001
Socsec Cov	-0.0800	0.099	0.0199	0.919
Industry				
Manufacture	0.0916	0.166	0.4220	0.097
Construction	0.0763	0.417	0.3402	0.244
Trade	0.3542	0.002	0.4930	0.049
Transport	0.4160	0.001	0.5887	0.042
Finance	0.0134	0.948	0.8609	0.448
Hours	0.0050	0.001	0.0086	0.023
Married	0.2987	0.002	0.1531	0.631
Experience	0.0908	0.001	0.0668	0.015
Experience <sup>2</sup>	-0.0015	0.001	-0.0012	0.012
Selection term	-0.5873	0.0315	0.2546	0.3587 <sup>1</sup>
R <sup>2</sup>	0.3981		0.1706	
F test	31.71	0.0001	3.18	0.0001
N	784		264	

<sup>1</sup> Standard error.

PS: primary school. JHS: Junior high school and equivalent. HS: high school and equivalent. UNIV+: university and above. Socsec Cov: social security covered.

Hours: weekly working hours.

Experience<sup>2</sup>: experience squared.

N: number of observations.

A similar case to education is true for the industries. Workers in trade and transport make little more over the service industry workers than their counterparts in the wage employment. Hours worked per week

have again negligible contribution to the income of self-employed men, which is little over what their counterparts make in wage employment.

Being married contributes positively to the income of self-employed men over the unmarried, although this is a little less than what marriage brings to men in wage employment. The same interpretation is true for experience. Each year of experience increases the income of the self-employed men, which is just under the corresponding gain in wage employment.

### ***B. Estimates for Women in Wage and Self Employment***

Estimates for women in wage employment in comparison with wage earning men indicate some major differences between the sexes. Returns to high school and university and higher education are higher for women. Illiterate women earn less than women who are literate without diploma.

As opposed to wage earner men, having social security shelter increases women's income over the uncovered ones. This might be due to the much lower income of women, whose insurance premiums do not bring too much financial burden on the employer.

None of the dummies for the industry variable are significant. This can be interpreted to mean that no matter which industry women work in, there is no additional contribution stemming just from working in a particular industry.

Unlike wage earner men, the more hours worked per week do not translate into higher income for women. As pointed out earlier, women work on the average fewer hours than men, which can be explained, in part, by the traditional responsibilities imposed on women in connection with the domestic work.

As expected, married wage earner women make less than their unmarried counterparts. Factors explaining this phenomenon vary from household responsibilities imposed on women to interruptions due to child bearing. Although job experience increases income of women, this increase is much less than what wage earner men gain from one additional year on the job.

Estimates for the women in self employment are unreliable due to the small number of self-employed women. Therefore, no interpretation will be advanced for them.

**Table 5. Selectivity Corrected Estimates of Wage Equations for Women**

Variables	Wage Employment		Self Employment	
	Coefficient	P >  z	Coefficient	P >  z
Constant	16.7780	0.001	9.3407	0.001
Education				
Illiterate	-1.4784	0.001	0.8387	0.790
PS	0.2329	0.494	-2.5104	0.032
JHS	0.2208	0.552	-7.0875	0.001
HS	0.7945	0.027	-1.7450	0.267
UNIV+	1.70484	0.001	-0.5361	0.795
Socsec Cov	0.4140	0.001	1.7008	0.077
Industry				
Manufacture	-0.0611	0.638	1.2362	0.289
Construction	0.2731	0.596	9.4030	0.001
Trade	-0.1112	0.505	3.2329	0.030
Transport	--	--	--	--
Finance	--	--	--	--
Hours	-0.0002	0.955	0.0334	0.052
Married	-0.2711	0.042	0.2386	0.706
Experience	0.0286	0.092	-0.0044	0.024
Experience <sup>2</sup>	0.0005	0.238	-0.0012	0.097
Selection term	-0.5873	0.0315 <sup>1</sup>	0.9555	0.0600 <sup>1</sup>
R <sup>2</sup>	0.4337		0.6192	
F test	9.90	0.0001	3.32	0.074
N	196		21	

<sup>1</sup> Standard error.

N: Number of observations.

## V. DECOMPOSITION OF WAGES BY JOB STATUS

Wage decomposition by way of the Oaxaca technique and its various derivatives has been used extensively in studies on wage differentials and determination, some of which are mentioned in the section dealing with the discrimination literature. The Oaxaca decomposition is a technique which is very useful in distinguishing the difference in wages due to human capital characteristics (i.e. education, age, experience), from those that could be attributed to discrimination (i.e. the unexplained portion of the difference in wages).



Table 6 summarises the calculations performed for both wage and self employment by taking the male and female structure separately as a base for each employment type. This was necessary due to the index number problem inherent in the technique that makes no distinction between the male and female structures. So, both are employed in the analysis. Additionally, all calculations performed on the wage equations are estimated by OLS rather than the selectivity corrected wage equations on two grounds: in half of the wage equations, the sample selectivity bias is found insignificant, and, more importantly, the purpose here is to see the actual degree of discrimination prevalent in the labour market, which does not impose the use of sample selectivity corrected estimates. The OLS wage equations used for this exercise are different than the ones used in the previous section, due to the skewed

**Table 6. Wage Decomposition by Job Status**

Employment Type	Variables	Male <sup>1</sup>			Female <sup>2</sup>	
		Total Difference	Due to Discrimination	Due to Endowment	Due to discrimination	Due to Endowment
W A G E  E M P L O Y M E N T	Illiterate	.0412	.0103	.0309	.0091	.0320
	PS	.0147	-.0053	.0200	.0273	-.0126
	JHS	.0300	.0062	.0238	.0368	-.0068
	HS	.0026	-.0379	.0405	.0259	-.0233
	UNIV+	-.0562	-.0743	.0181	.0095	-.0657
	Socsec Cov	-.4087	-.0007	-.4080	-.4017	-.0070
	Industry	-.0094	-.0005	-.0089	-.0077	-.0017
	Hours	-.0613	.0358	-.0971	-.1116	.0503
	Married	.2014	.0473	.1541	.2412	-.0398
	Experience	1.4530	.3715	1.0815	1.3867	.0663
	Experience <sup>2</sup>	-.8602	-2.2568	-.6033	-.8762	.0161
Total	.4320	.0955	.3365	.4244	.0076	
S E L F  E M P L O Y M E N T	Illiterate	.1062	.0093	.0969	.0385	.0677
	PS	1.1104	.1111	.9993	1.4176	-.3073
	JHS	.3351	-.0118	.3469	.3035	.0316
	HS	.8961	-.1013	.9974	.5818	.3143
	UNIV+	.5640	-.0135	.5775	.5363	.0277
	Socsec Cov	-1.2100	.0068	-1.2168	-1.3436	.1336
	Industry	-.0799	.0079	-.0879	-.0439	-.0360
	Hours	-.6592	-.3062	-.3530	-.0055	-.6536
	Married	-.4636	.0012	-.4648	-.6521	.1885
	Experience	-1.1278	.1021	-1.2299	-1.3147	.1868
	Experience <sup>2</sup>	.0140	-.0646	.0786	.0845	-.0704
Total	1.6942	-.2591	1.9533	1.8114	-.1172	

<sup>1</sup> A + (-) sign indicates advantage for males (females).

<sup>2</sup> A + (-) sign indicates advantage for females (males).

distribution of women in the categories of INDUSTRY and WORKPLACE variables. For industry, the dummies are dropped and workplace variable is not included.

It appears that wage differentials (in logarithmic forms) for both employment sectors and sexes are considerable, which is in agreement with the earlier findings (Dayıođlu, 1995; Tansel, 1996; Tansel, 1999). Gender difference in wage employment seems substantially smaller than it is in self employment (.4320 vs. 1.6942). When the male structure is taken as a base, the proportion of discrimination in the gender wage difference is 22% in favour of men. When the female structure is used, this climbs to 99 percent in favour of women. Similar comparison for self employment indicates the seriousness of discrimination in wages in Istanbul (15% of the wage difference when the male structure is used and 107% when the female structure is used). Besides pointing out the sizable wage discrimination in self employment—nearly three times of that in the wage employment—the sign of discrimination term suggests female advantage even when the male structure is used. This runs against both the academic consensus and the layman’s perception about women’s earnings in Turkey. Moreover, there is enough indication that this is an artifact of the model used that is under-specified for securing comparable estimates for males and females in each sector. Oaxaca (1973: 699) himself explains this clearly by saying that “the magnitude of the estimated effects of discrimination crucially depends upon the choice of control variables for the wage regressions.” Therefore, the interpretation should be limited to wage employment, for which wage equations indicate a better fit.

## **VI. CONCLUSION**

This paper investigates the factors that determine the wages of both men and women in wage employment and self employment with the view that wages are determined rather differently in both employment types. It is pointed out that for wage and self-employed workers, Turkey resembles industrialised countries more than developing ones in terms of division of labour force. This confirms the claim of development theorists who assert that with development, the proportion of the self-employed declines in the labour force.

Istanbul is chosen to represent the urban population in Turkey. Having a population of approximately 7 million and being the heart of the Turkish economy, Istanbul is the ideal urban setting to investigate processes that shape wages.

The model used is composed of both human capital variables and work-related variables. Using the two-step Heckman procedure, it is shown that there are differences in the wage determination of men and women and between wage and self employment. The important difference between wage employment and self employment is the higher returns to education in self employment. This indicates the existence of different valuation of education in the two employments. For men in both employment types and women in wage employment, more education means more income. This walks in the face of those who downplay the role of education in income generation. In recent years, due to increased favouritism, particularly in the public sector job placements, some have started believing that education is of little help in job competitions. This paper disputes such thinking and indicates the increasing importance of education.

Women in wage employment seem to benefit most from social security coverage while social security coverage appears as a disadvantage for men in wage employment. As explained earlier, this is due to the tradeoff between high wage but no coverage and low wage but coverage.

Industries that workers are employed in did not confirm the pattern expected by the researchers. Only the workers in the trade and transport sectors seem to benefit, compared to workers in the services industry, from their respective industries. It is known that Istanbul is the center for wholesale and retail trade. Therefore, trade's contribution to income more than the others is not surprising. It is tempting to think that contribution of the transport industry is just a spillover effect of the trade activities. Since the highest volume of exports and imports are handled in Istanbul, which requires colossal transportation facilities of all kinds (land, sea and air), workers benefit more from such industry where wages are second to the wages in transport.

Working hours per week appear to be contributing to men's earnings while more hours imply reduction of women's wages. Women usually

work less compared to men. Cultural responsibilities for domestic housework and child-rearing activities constitute the biggest obstacles that prevent women from working longer and without disruption. This is also confirmed by the effect of marriage on earnings. While men in both wage and self employment clearly benefit from marriage compared to the unmarried, being married seems to be a disadvantage for women in wage employment.

Job experience contributes positively to men in both employments and to women in wage employment. However, an extra year of job experience brings relatively more income to wage earner men than to men in self employment, and brings the least to women in wage employment.

Decomposition of the wages into discrimination and endowment components indicates the existence of a relatively higher discrimination in wage employment than in self employment. This may seem paradoxical given the fact that income differentials are higher in self employment than in wage employment. This apparent paradox resolves when different valuation of the two employments is taken into account. As shown above, in the context of returns to education, self employment provides highest returns for men in self employment. This clearly shows that education is more highly valued in self employment than in wage employment. Furthermore, since education is an important determinant of earnings, workers being paid on the basis of their education level goes along with the idea of income according to endowment, which means less discrimination. All these suggest that whatever difference remains in wages is more due to endowments than discrimination in self employment. In wage employment, different criteria for evaluating workers seem to be utilised, which are known to be more prone to favouritism. Moreover, relatively less income differentials are due to restrictions imposed by laws regulating salaries in the case of public employment and efforts of unions in the case of private employment, which also affect non-union workers in some indirect ways.

#### NOTES

1. Ashraf and Ashraf (1993; 1998) applied wage decomposition for Pakistan, Kingdon (1997) for India, Nor (1998) for Peninsular Malaysia, Katz (1997) for a Russian industrial town, Appleton,

Hoddinott and Krishnan (1996) for three African countries (Ethiopia, Uganda and Côte d'Ivoire), Drago (1989) for Australia, Ashraf (1994), Darity, Guilkey and Winfrey (1995) and Fairlie (1999) for the U.S., and Dayıoğlu (1995) and Tansel (1996; 1999) for Turkey.

2. The model employed in this paper combines the two sets without imposing any restriction on them. That is, it is assumed that all the variables included in the model influence wage. The model, then, includes education, work experience and marital status, which are commonly used in the human capital models, as well as social security coverage, public-private sector employment, industry and the number of hours worked per week. In the model, education, industry, social security coverage, employment type and marital status are expressed as dummy variables.

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